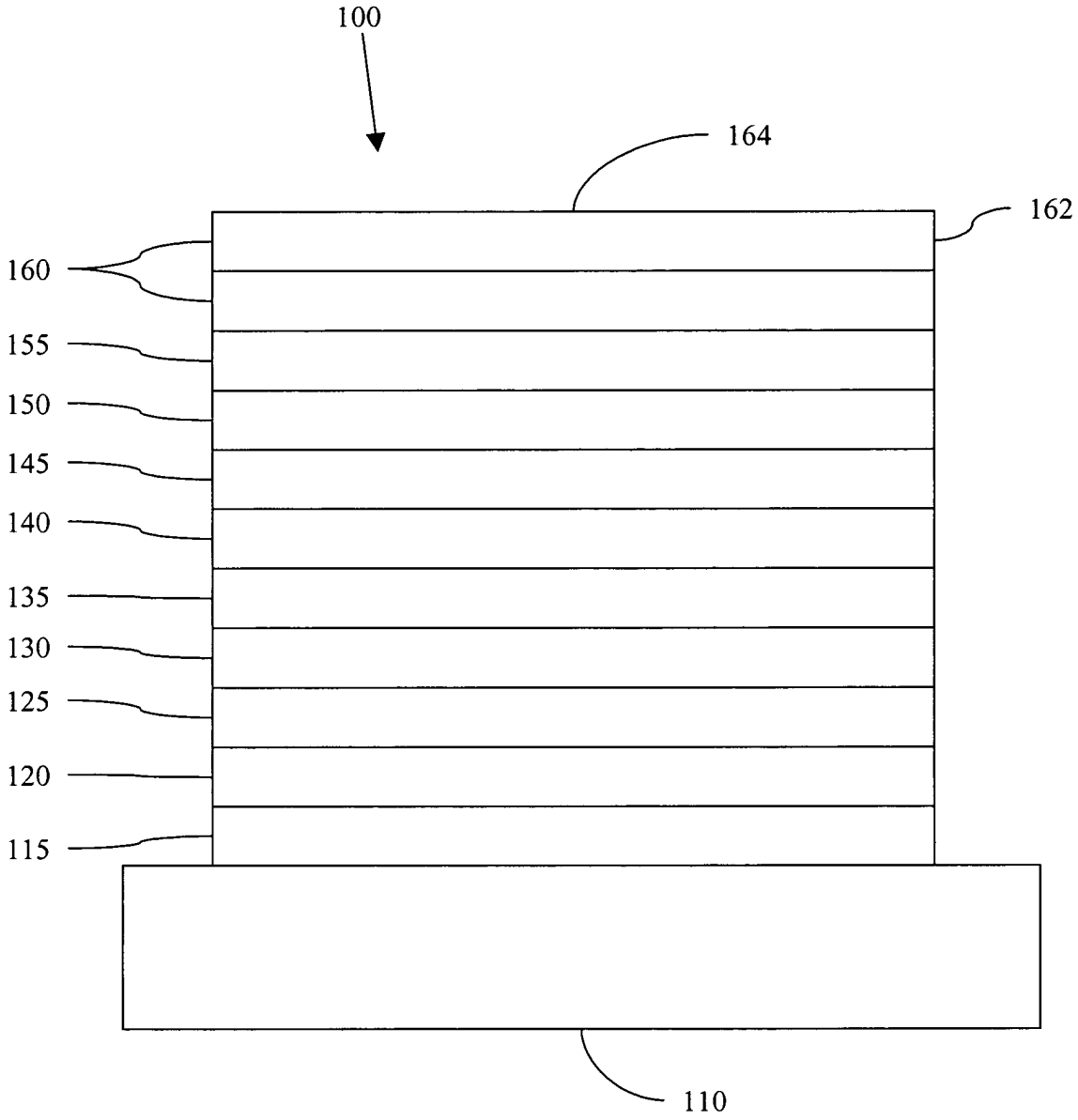


Figure 1

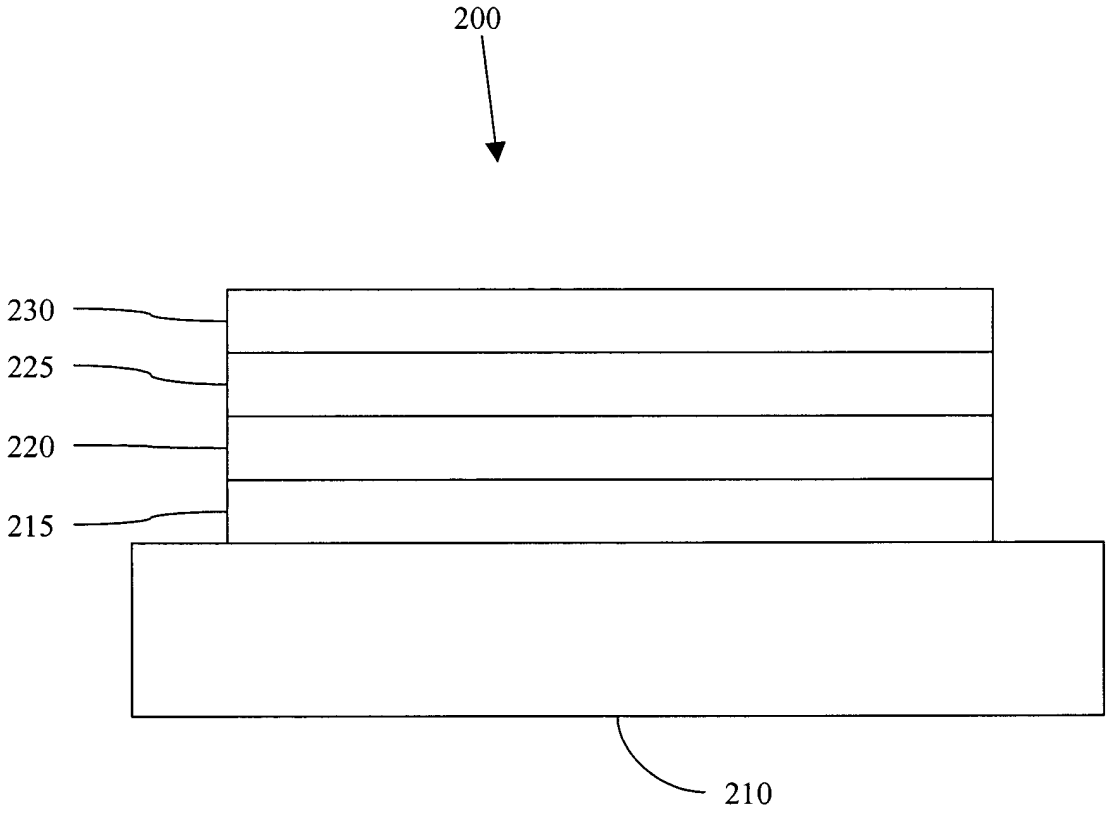


Figure 2

Figure 3

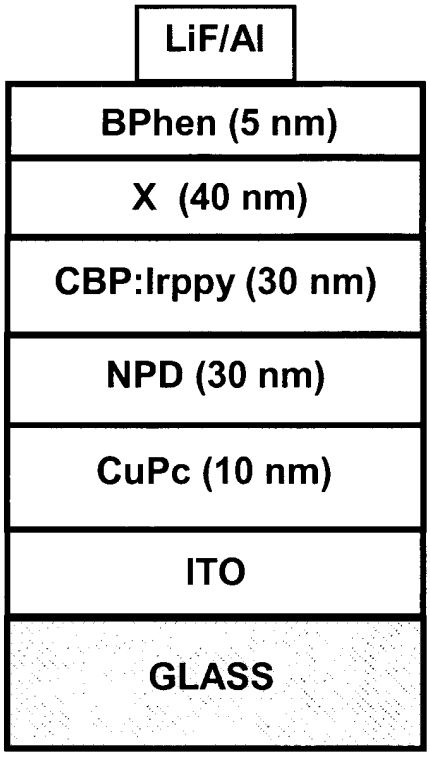

LiF/Al
BPhen (5 nm)
X (40 nm)
CBP:Irppy (30 nm)
NPD (30 nm)
CuPc (10 nm)
ITO
GLASS

Figure 4

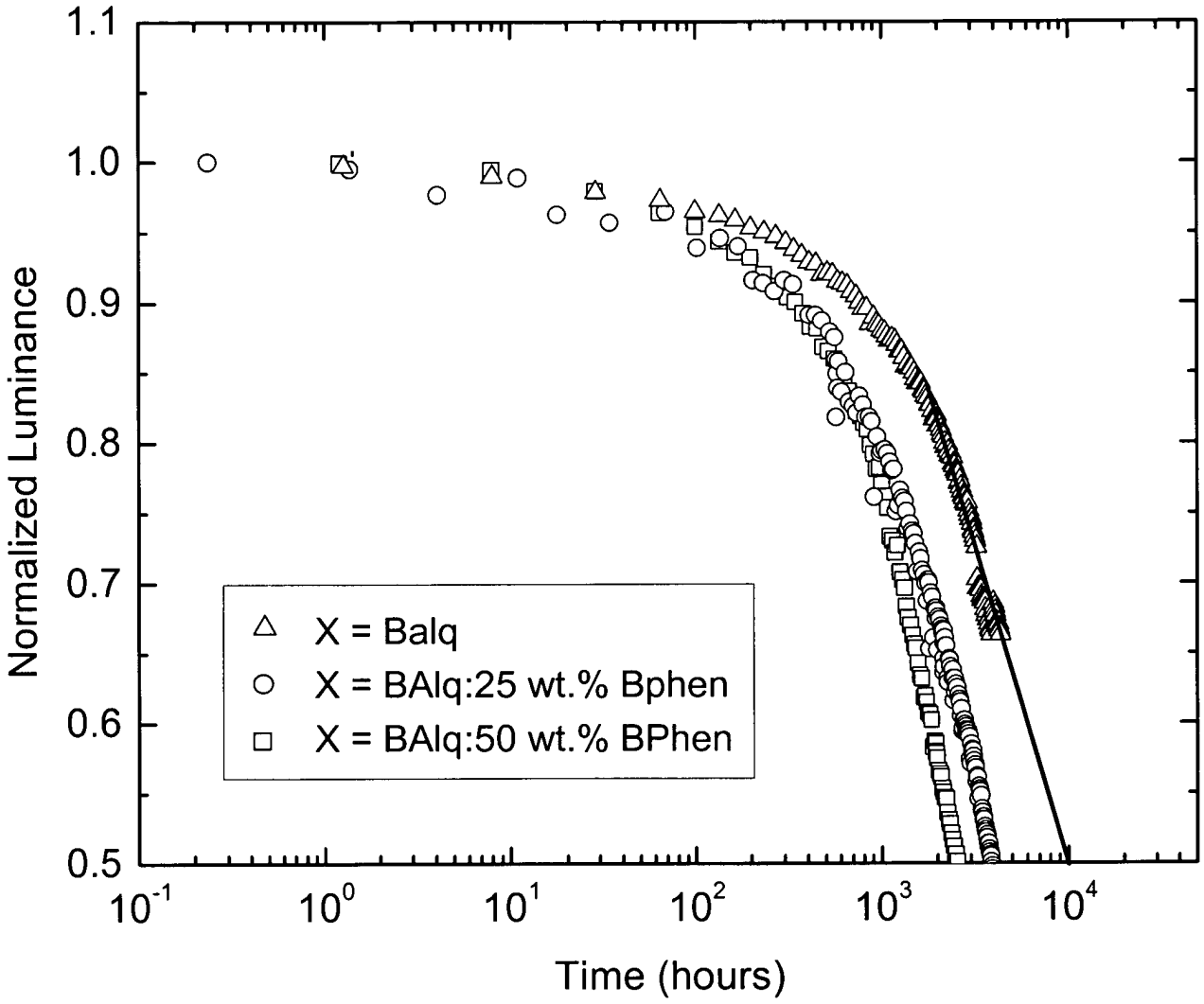

1.1
1.0
0.9
0.8
0.7
0.6
0.5
Normalized Luminance
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
Time (hours)
X = Balq
X = BAlq:25 wt.% Bphen
X = BAlq:50 wt.% BPhen

Figure 5

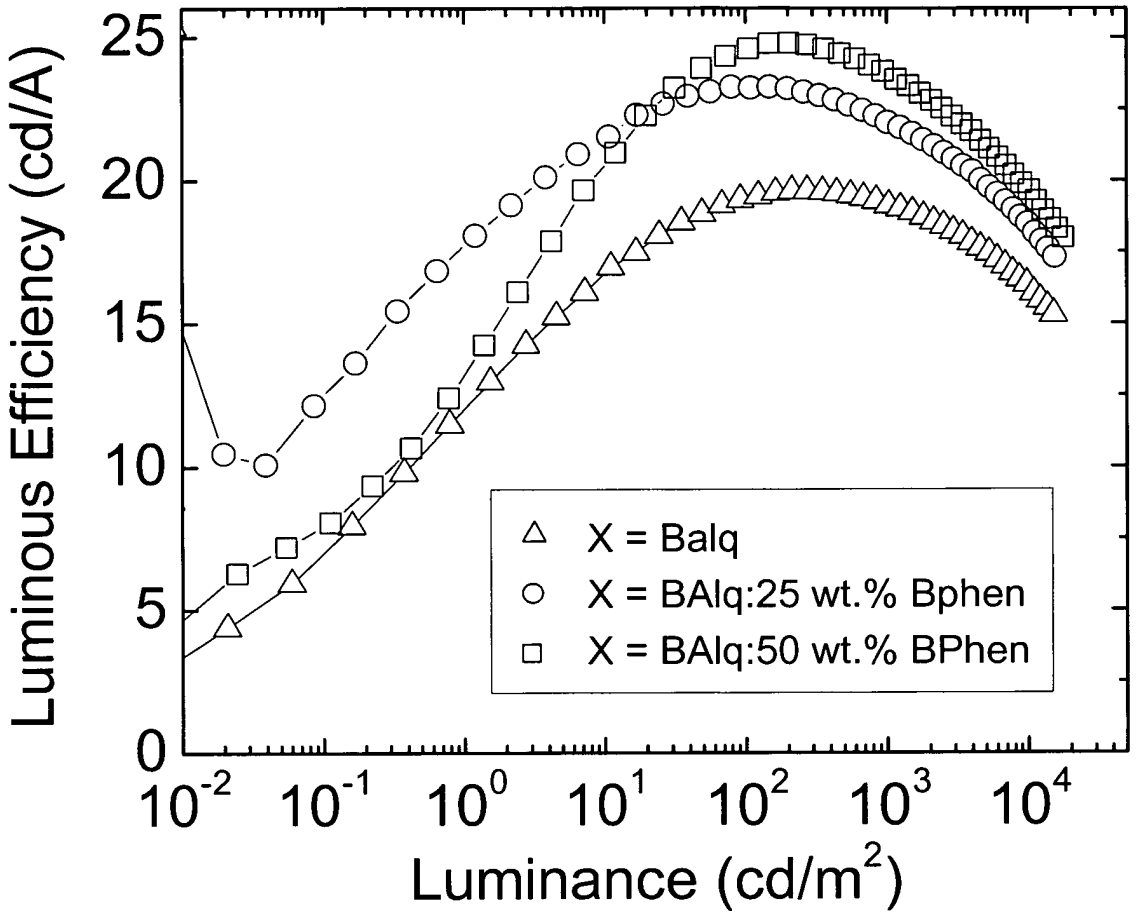
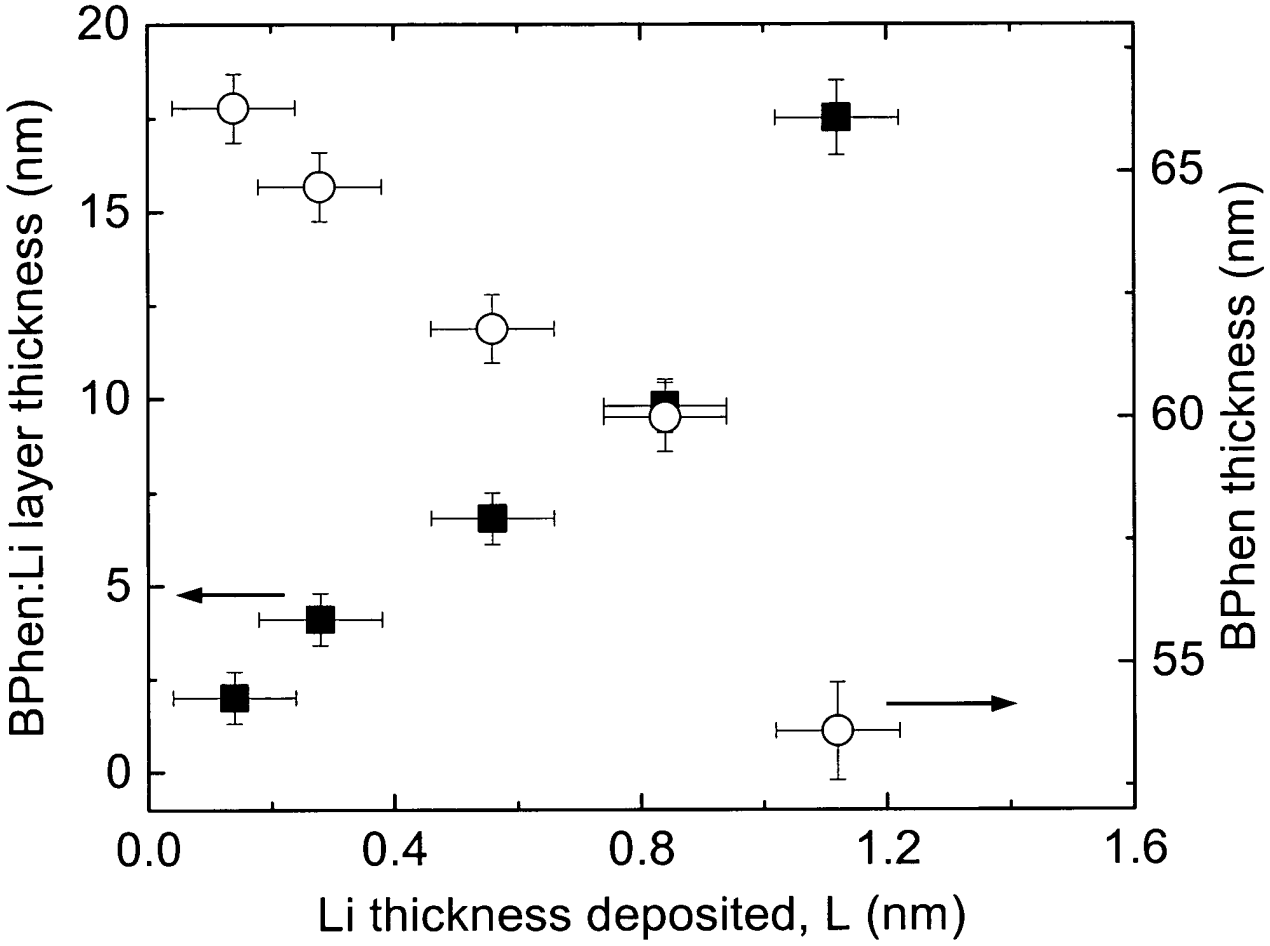

Luminous Efficiency (cd/A)
25
20
15
10
5
0
10^{-2}
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
Luminance (cd/m^2)
X = Balq
X = BAlq:25 wt.% Bphen
X = BAlq:50 wt.% BPhen

Figure 6


20
15
10
5
0
BPhen:Li layer thickness (nm)
65
60
55
BPhen thickness (nm)
0.0
0.4
0.8
1.2
1.6
Li thickness deposited, L (nm)

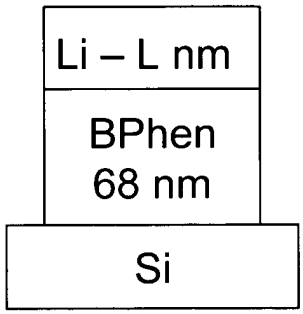

Li – L nm
BPhen
68 nm
Si

Figure 7

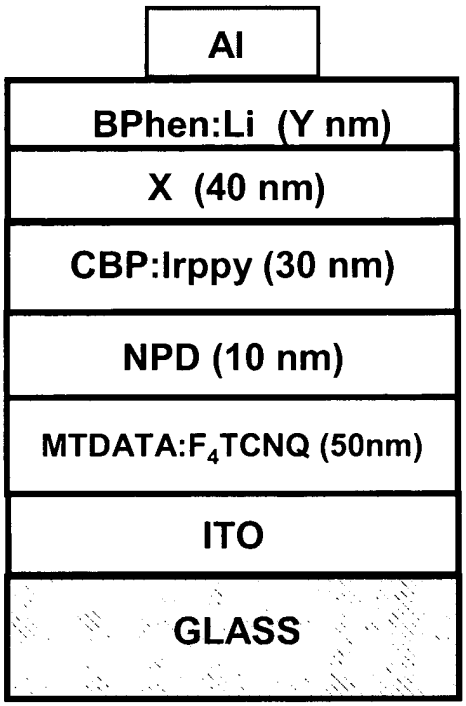

Al
BPhen:Li (Y nm)
X (40 nm)
CBP:Irppy (30 nm)
NPD (10 nm)
MTDATA:F4TCNQ (50nm)
ITO
GLASS

Figure 8

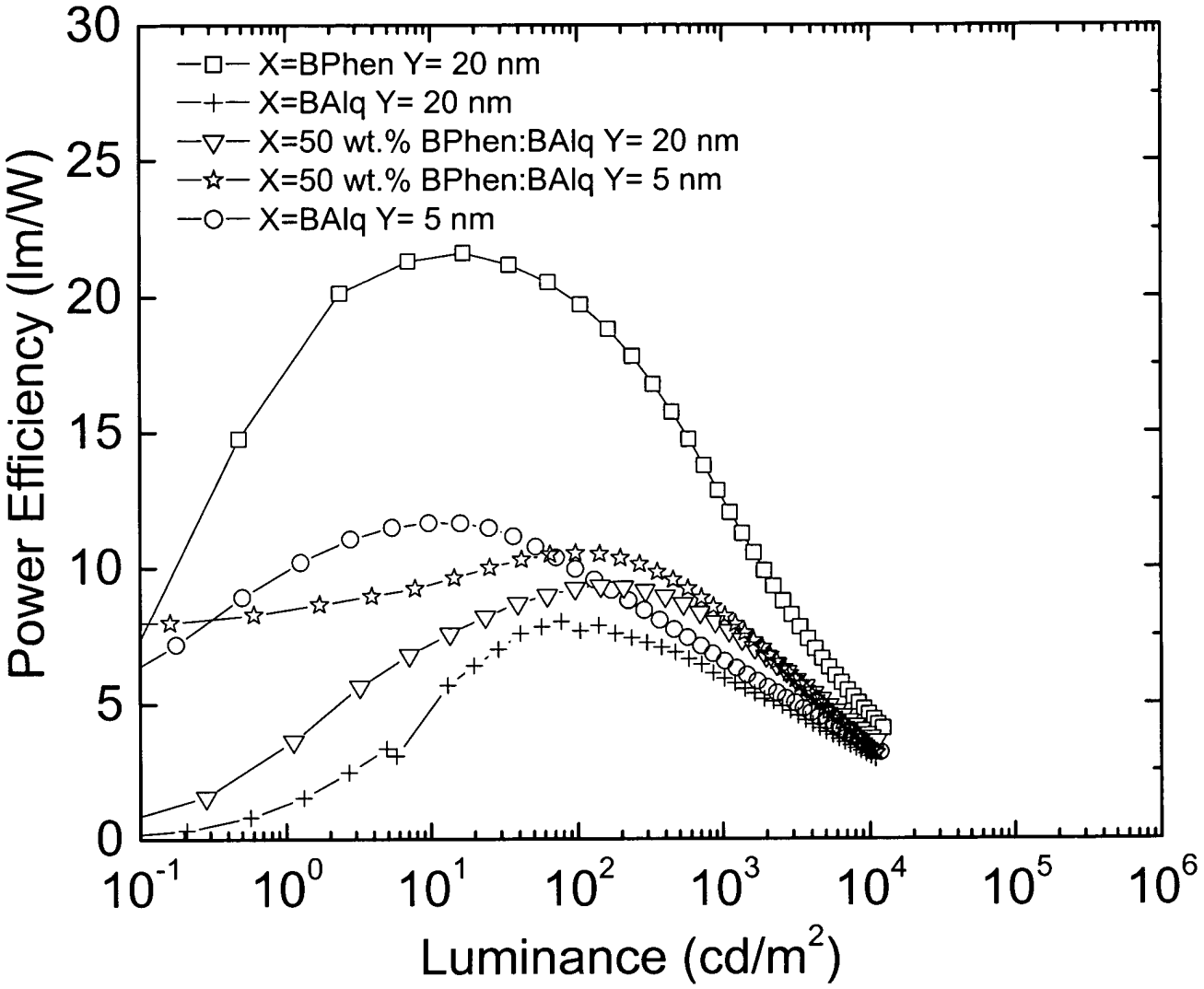

X=BPhen Y= 20 nm
X=BAlq Y= 20 nm
X=50 wt.% BPhen:BAlq Y= 20 nm
X=50 wt.% BPhen:BAlq Y= 5 nm
X=BAlq Y= 5 nm
Power Efficiency (lm/W)
Luminance (cd/m2)
0
5
10
15
20
25
30
10-1
100
101
102
103
104
105
106

Figure 9

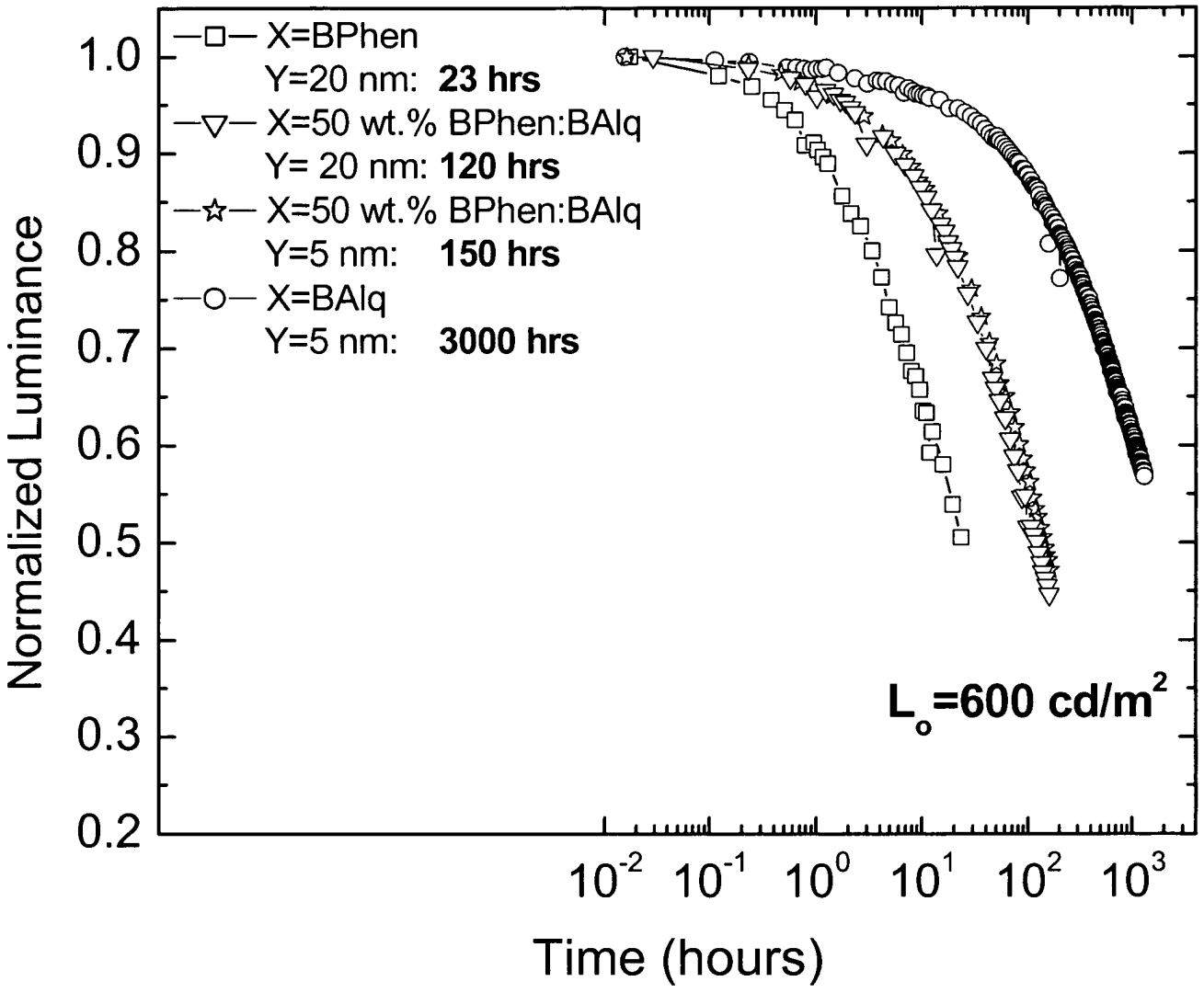
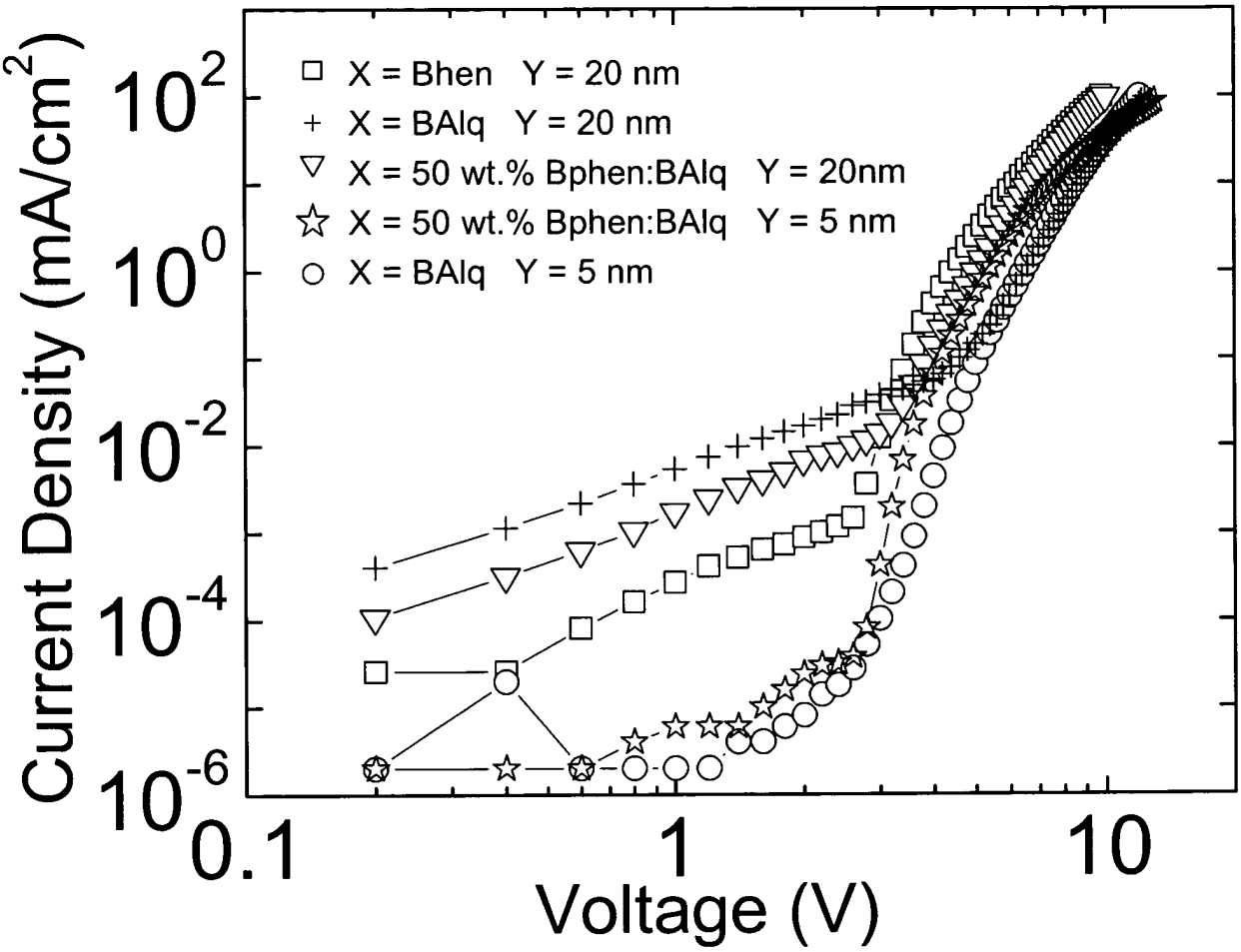

X=BPhen
Y=20 nm: 23 hrs
X=50 wt.% BPhen:BAlq
Y= 20 nm: 120 hrs
X=50 wt.% BPhen:BAlq
Y=5 nm: 150 hrs
X=BAlq
Y=5 nm: 3000 hrs
L_o=600 cd/m^2
Normalized Luminance
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
10^-2 10^-1 10^0 10^1 10^2 10^3
Time (hours)

Figure 10


Current Density (mA/cm^2)
10^2
10^0
10^{-2}
10^{-4}
10^{-6}
0.1
1
10
Voltage (V)
X = Bhen Y = 20 nm
X = BAlq Y = 20 nm
X = 50 wt.% Bphen:BAlq Y = 20nm
X = 50 wt.% Bphen:BAlq Y = 5 nm
X = BAlq Y = 5 nm